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EXAMINER

ROSARIO-VASQUEZ, DENNIS

ART UNIT PAPER NUMBER

2621

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/917,766

Applicant(s)

KUMAZAWA, YUKIO

Examiner

Dennis Rosario-Vasquez

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,9 and 11-22 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07.31/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Objections***

1. The following quotations of 37 CFR § 1.75(a) is the basis of objection:  
  
(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.
2. Claim 9 is/are objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery.

Claim 9, line 4 "extracts" ought to be amended to "extract".

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1,3,11,12,13,14,16,20 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda et al. (4,985,930 A).

Regarding claims 1 and 3:

"a predetermined pixel block" in claim 1 corresponds to the rectangular frame 38 in fig. 2 of Takeda et al.

"a predetermined pixel block extraction part" corresponds to the program for which the flow chart in figure 5 is shown. The program of figure 5 is performed within the step of figure 4, num. 113: "NORMALIZE INCLINATION AND SIZE".

"an image correction part" corresponds to the part of Takeda et al's system that carries out the process shown in figure 7.

"a reference pixel block" corresponds to the rectangular frame 33 in fig. 2 of Takeda et al.

"an input document image" in claim 1 corresponds to fig. 2, num. 26.

Takeda et al. discloses a document image processing device, comprising:

a) a predetermined pixel block extraction part (The step of fig. 4, num. 113 has a part that detects the lines of the frame of fig. 2, num. 38 at col. 5, lines 33,34. The frame 38 was added beforehand at a predetermined position in the step of fig. 3, num. 103 as mentioned in col. 4, lines 52-56 and 65 and shown in figure 2, num. 33.) that extracts a predetermined pixel block (The step of fig. 4, num. 113 detects the four lines of the frame of fig.2 ,num. 38 using a Hough conversion algorithm at col. 5, line 43 and mentioned in col. 5, line 45 to col. 6, line 12.) that appears commonly on at least some pages from an input document image (Each input document image has a rectangular frame 38 that was previously added in the step of figure 3, num. 103 and shown in figure 2, num. 38.); and

b) an image correction part (The step of figure 4, num 113 has an additional part that corrects an image as shown in figure 7 (col. 5, lines 31-33).) that corrects a location of the whole input document image so that a position of the predetermined pixel block extracted by the predetermined pixel block extraction part is coincident with a reference position or a position of a reference pixel block in the document image (Using figure 2, the frame of numeral 38 is adjusted to coincide with frame of numeral 33 as

mentioned in col. 5, lines 35-39 using the method of figure 7 as described in col. 6, lines 13-42. Note that figure 7 is correcting the skew of a document image using the program of figure 5 which is illustrated in figure 6.)

Regarding claim 3, Takeda et al. discloses the document image processing device according to claim 1, further comprising:

a) an image memory part (fig. 1, num. 7: "memory") that holds the input document image (The memory of fig. 1, num. 7 holds the input document image as discussed in col. 4, lines 45-66.) per each page (The memory of fig. 1, num. 7 holds one page as shown in figure 2, num. 23 and described in col. 4, line 31-37 and col. 7, lines 3-6.)

b) wherein the predetermined pixel block extraction part analyzes a layout of the document image in plural pages to be processed stored in the image memory part (Figure 4, num. 113 detects the four lines individually to form the frame as a layout as discussed in claim 1. Note that each line of the frame is made of line patterns and each frame encloses character font patterns as mentioned in col. 4, lines 65,66. Therefore each frame has a line pattern that is detected from the character font patterns.), and if there is approximately the same pixel block at a same position in the document image of each page (The frame 38 is skewed from an upright position. Note that each skewed frame was previously added in the step of figure 3, num. 103 and shown in figure 2, num. 23.), the predetermined pixel block extraction part regards the pixel block as a predetermined pixel block (The step of fig. 4, num. 113 detects the lines of the skewed frame of figure 2, num. 38 as discussed in claim 1.) and determines the reference

position (The step of fig. 4, num. 113 also uses the frame of fig. 2, num. 33 as a reference position for correcting the skew of the frame of fig. 2, num. 38 and discussed in claim 1.).

Regarding claim 11, Takeda et al. finds a pixel block (fig. 2,num. 38) that is approximately in the same position (The pixel block may not be upright position as shown in figure 2, num. 38, but the pixel block is approximately in the upright position.) for any page number.

Claim 12 was addressed in claim 1.

Regarding claim 13, Takeda et al. discloses the document image processing device according to claim 12, wherein the skew correction part subjects a center coordinate (Figure 6 shows how the step of figure 4, num. 113 uses a center coordinate "P3". Note that the coordinate "P3" is in between the upper and lower edges of the document 38.) of a rectangular frame (Fig. 6, numeral. 38 is a rectangular frame.) of pixel blocks (Figure 6,num. 26 is an image document of pixels.) to Hough transform (Figure 6 is a graphical representation of the process of figure 5 which is a program that uses a Hough conversion algorithm that detects lines at col. 5, lines 51-54.) to detect a skew angle (Figure 6 has an angle " $\theta$ " as the skew angle.)

Regarding claim 14, Takeda et al. discloses the document image processing device according to claim 1, wherein the predetermined pixel block corresponds to a page number image (fig. 2, num. 38 is a frame that contains a page number in the upper right corner labeled as "001".), the document image processing device further comprising:

a) a character recognition part (The computer program step of fig. 3, num. 101 retrieves a keyword or number from a document image..."in conformity with character recognition...(Takeda et al., col. 4, lines 48,61,62)".) that recognizes a character in an image; and

b) a sort part (The step of fig. 4, num. 115 uses an image file as shown in figures 1 and 2, num. 3 that stores images using keywords as shown in figure 2, num. 39 that can be used for later retrieval of the corresponding document image using the keywords.) that sorts the pages in the page number order (The keywords can be a sequence of numbers corresponding to a plurality of images as mentioned in col. 4, line 48 and col.7, lines 9-12.) after the image correction part corrects the location of the whole input document image (The document images are first corrected and re-stored using the keyword and image file of figure 1, num. 3 and mentioned in col. 7, lines 9-12 and 19-23) and the character recognition part recognizes the page number character in the page number image.

Claim 16 has been addressed in claims 1 and 3.

Claim 20 has been addressed in claims 1, 3 and 19.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2,4,15,17,19,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (US Patent 4,985,930 A) in view of Kunitake et al. (US Patent 5,446,803 A).

Regarding claim 2, Takeda et al. teaches all the elements in claim 1 except for “a reference position designation part”.

Regarding claim 4, Takeda et al. teaches the document image processing device according to claim 1 further comprising:

an image memory part that holds the input document image per page (This portion was addressed in claim 3); and

wherein the predetermined pixel block extraction part analyzes a layout of the document image of all the pages to be processed stored in the image memory part, and if there is approximately the same pixel block at a same position in the document image of each page, the predetermined pixel block extraction part regards this pixel block as the predetermined pixel block (This portion was addressed in claim 3), and the image correction part corrects a location of the whole input document image so that a position of the predetermined pixel block extracted by the predetermined pixel block extraction part is coincident with the reference position or the position of the reference



pixel block (This portion was addressed in claim 1). Takeda et al. does not teach a reference designation part as required of claim 4.

Regarding claim 15, Takeda et al. teaches all the limitations in claim 1, except for the limitation of causing a user to designate in advance a reference position or a position of a reference pixel block.

Regarding claim 17, Takeda et al. teaches all the limitations in claims 1 and 3 except for causing a user to designate in advance a reference position.

Regarding claim 19, Takeda teaches all the limitation in claims 1 and 2 and teaches a memory medium (fig. 1, numerals 7-12 is a memory bank.) readable by a computer (Fig. 1 is a computer with a processor 5 that is connected to the memory bank 7-12 via numeral 13.) Takeda et al. does not teach receiving a reference position or a position of a reference pixel block designated in advance by a user.

Regarding claim 21, Takeda et al. teaches all the limitations in claims 1,3 and 19 except for receiving a reference position designated in advance by a user.

Takeda et al. does suggest using a predetermined position of adding a frame to an image as shown in figure 2, num. 23 and mentioned in col. 4, lines 62-65, and does suggest a user inputting a correction mark at col. 5, line 5 and col. 7, lines 51,52 and shown in figure 2, num. 36,46.

However, Kunitake et al., in the field of endeavor of correcting a displacement of an image, teaches the remaining portion of claim 2 of a document image processing device (fig. 1) comprising:

A reference position (Fig. 7(a), num. 704 is a reference position or line that will be used as a reference for another line 707.) designation (Using figure 7(a) a user selects points 706 and 708 to form a line 710 (col. 8, lines 54-56).) part (Fig. 1, num. 107: "POSITION INSTRUCTION UNIT" uses position information from a user (col. 3, lines 45-47.) that causes a user to designate a reference position.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the teaching of user inputted correction mark and the predetermined frame position of Takeda et al. with the reference selection teaching of Kunitake, because Kunitake's reference selection teaching provides for easy correction (Kunitake, col. 9, lines 16-21) in multiple directions as mentioned in Kunitake, col. 8, lines 14-42. Thus, Takeda's predetermined frame position can be modified with Kunitake's reference selection for aligning images.

7. Claims 9,18,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (US Patent 4,985,930 A) in view of Hashiya et al. (US Patent 6,333,997 B1).

Regarding claim 9, Takeda does not teach the limitations of claim 9, but does suggest a size normalization procedure of a document (fig. 2, num. 26) relative to another document (fig.2, num. 23) that normalizes the size of the frame for detecting a resized frame as mentioned in Takeda et al, col. 5, lines 26-44. Therefore, the document and the frame of fig.2, num. 26,38,respectively, are scaled to the size of the document and frame of fig.2, num. 23,33, respectively.

Claims 18 and 22 have different language than claim 9, but all the claims are directed towards the same limitation. Therefore claims 18 and 22 have been addressed in claim 9.

However, Hashiya et al. teaches a document image (fig. 3 is a document image scanned by scanner 103.) processing device (Fig. 16 includes the scanner of figure 3, num. 103 as shown in figure 16, num. 103.), further comprising an undetected log generation part (fig. 16, num. 302 accumulates detection data in a memory with address locations for multiple detections as shown in figure 17 which shows two process numbers for each detection. Hashiya et al. states, "The process number indicates the number of a process in which detection could not be performed (col. 10, lines 39,40)." Thus figure 17 shows two process numbers in which detection could not be performed.) that records information of the document image from which a pixel block extraction part (fig. 16, num. 301 is an "OBJECT SELECT[ING] SECTION" that selects an area as shown in fig. 3, label "P".) cannot extract a pixel block (fig. 16, label "P" as shown in detail in figure 3 is selected using fig. 16, num. 301 to determine "...whether or not the position of the...object P can be determined (col. 10, lines 19-22).").

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the teaching of Takeda et al.'s normalization teaching between documents with Hashiya et al.'s teaching of the parts of figure 16, numerals 301 and 302, because Hashiya et al.'s teaching provides feedback to a user as shown in figure 18 by an error message and a corrective action message that will improve the recognition performance of an object to be detected.

***Allowable Subject Matter***

8. Claims 5-8 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Claim 5 is allowable over the prior art, because the prior art does not teach or suggest extracting a character string block that is nearest a reference position.

Claims 6-8 are allowable for the same reasons as claim 5.

The closest prior art is Katsurada et al. (US Patent 5,359,677 A) which teaches extracting a character region that has a deviation angle (fig. 7, labels n1 and n3). Then the deviation angle is corrected (fig. 7, num. n5).

Claim 10 is allowable over the prior art, because claim 10 requires a reference position designation part that identifies respective reference positions based on odd or even pages.

The closest prior art is Aoi (JP 359041960 A) which teaches a system (fig. 1) that selects odd (fig. 1, num. 16) or even (fig. 1, num. 15) pages for printing.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Koga et al. (US Patent 5,717,794 A) is pertinent as teaching a method of extracting various regions of text (fig. 2, num. 206, 209, 210, 207) and using a merge operator (fig. 20B, num. 2004) that merges the regions. Additionally, Koga teaches

multiple functions such as skew, layout analysis, character segmentation as shown in figure 13.

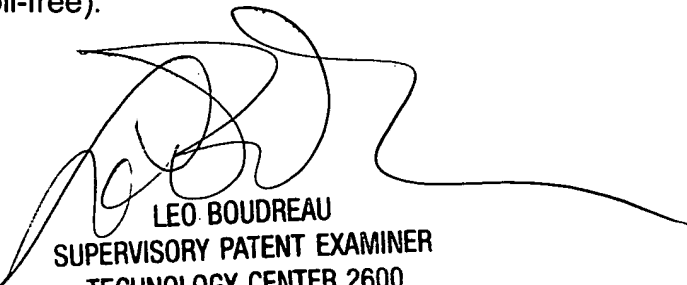
Yoda (US Patent 5,185,821 A) is pertinent as teaching a method of a user selecting a page number area (fig. 4, num. 30a) of a document as a predetermined area (col. 4, lines 8-31).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario-Vasquez whose telephone number is 703-305-5431. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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